Jun 21st, 1:30 PM - 1:50 PM

A update on the Fish Passage file in BC

Craig Mount
British Columbia Ministry of Environment

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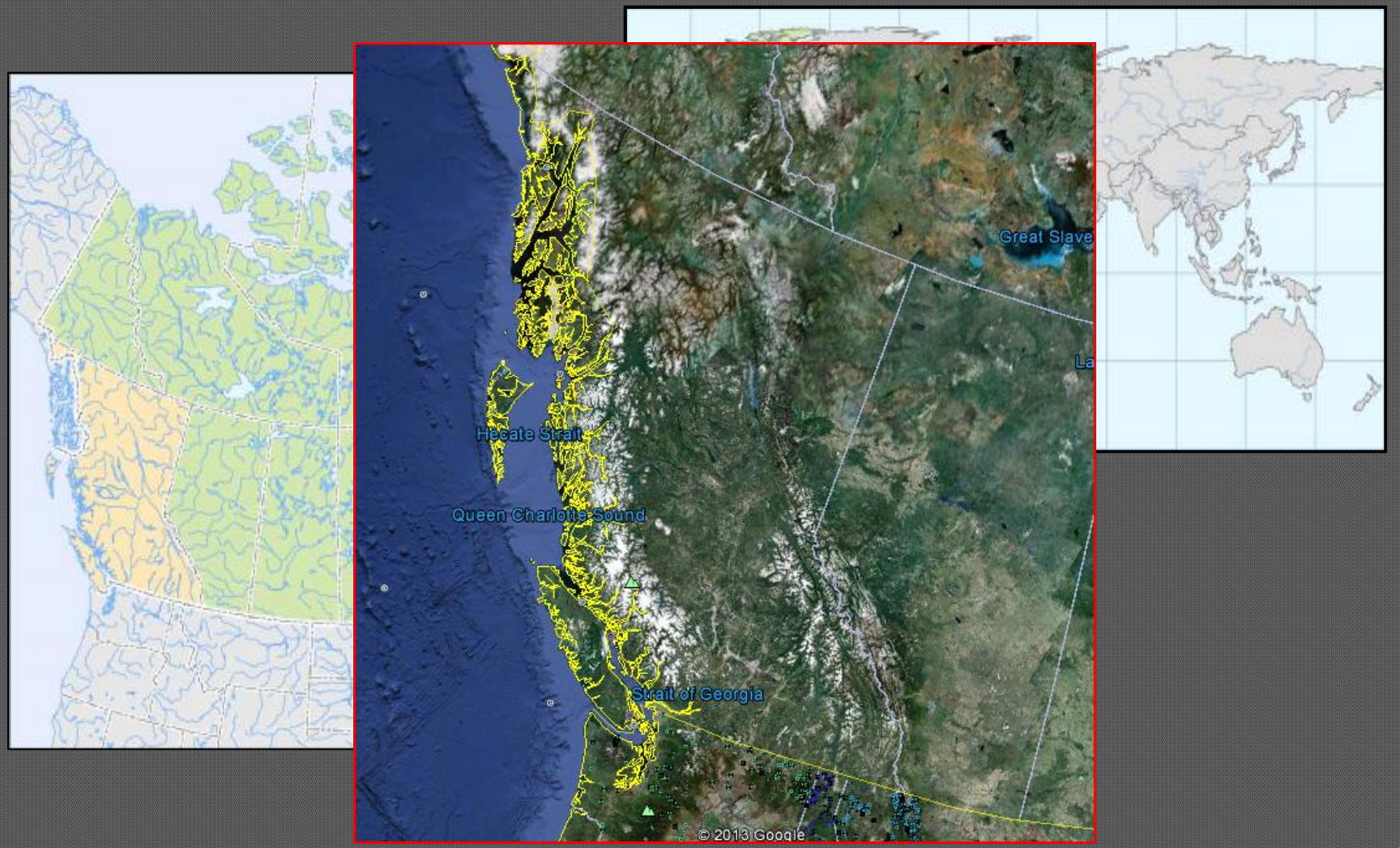
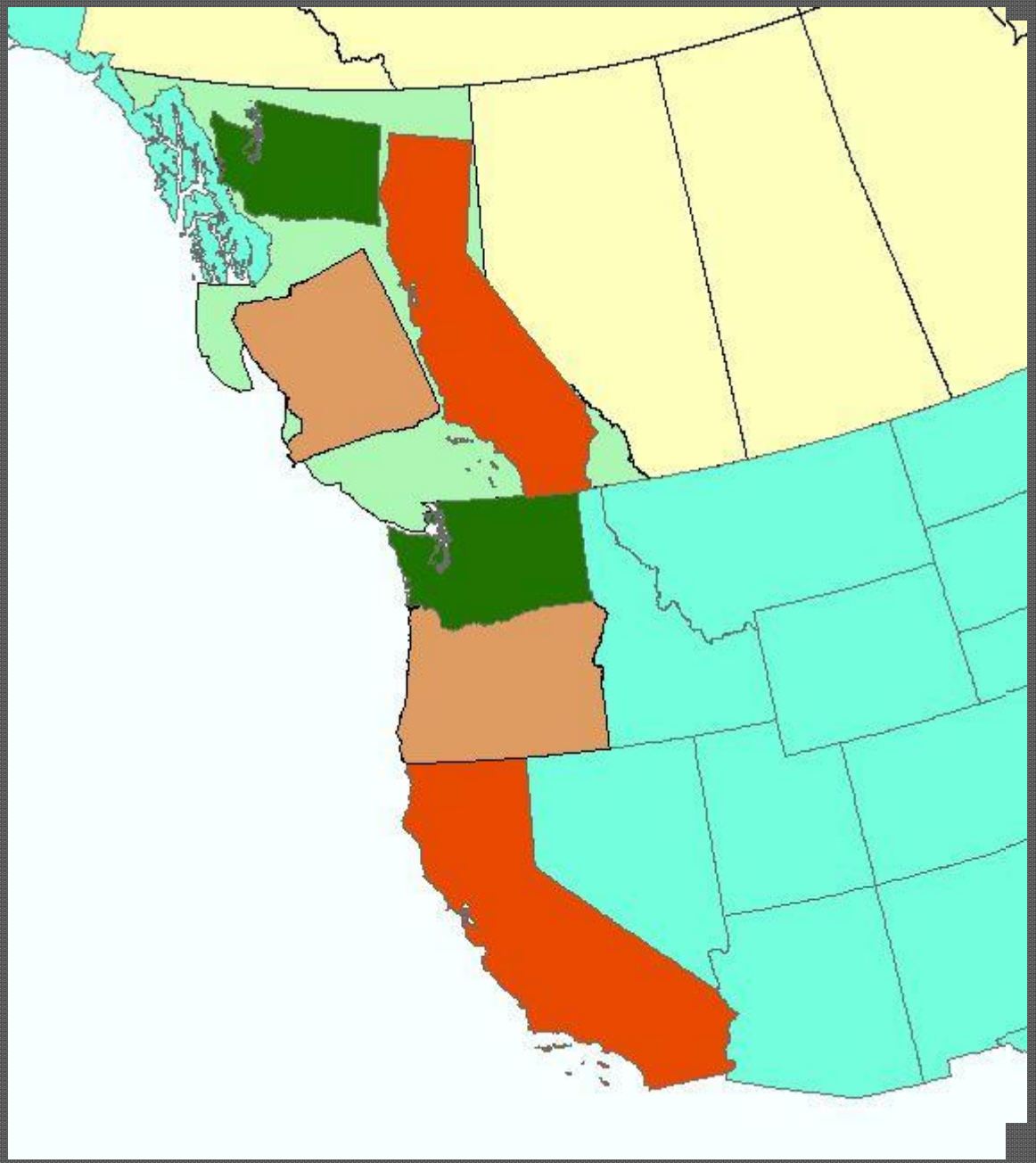
Craig Mount Aquatic Habitat Geomorphologist
British Columbia Ministry of Environment

Outline

- Background
  - The BC Spatial Context
  - The BC Fish Context
  - The BC Resource Sector Context
- Recap from 2013
- What have we accomplished since then?
  - More assessments
  - More remediations
  - More partnerships
  - Refinement to the habitat model
  - Improvements to the PSCIS database
- Assessment and Modelling Results
- Results from a cross section of watersheds
- The Future

British Columbia's Land Base





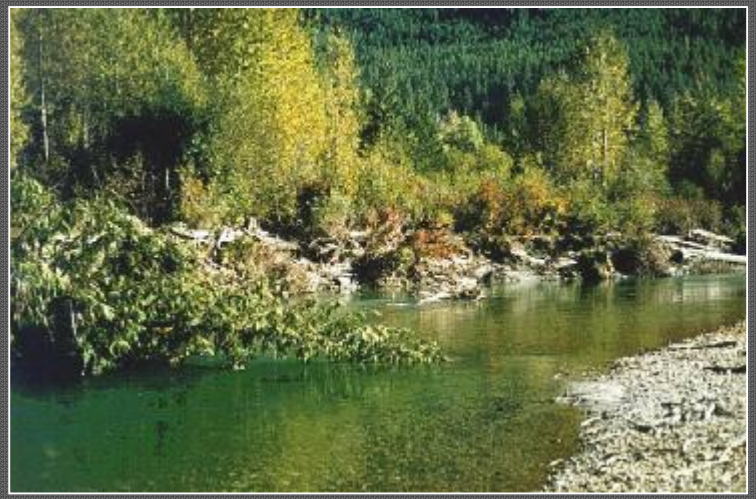
A big chuck of real estate 944,735km^2

Washington
184,800km2
+
Oregon
255,000km2
+
California
424,000km2

=

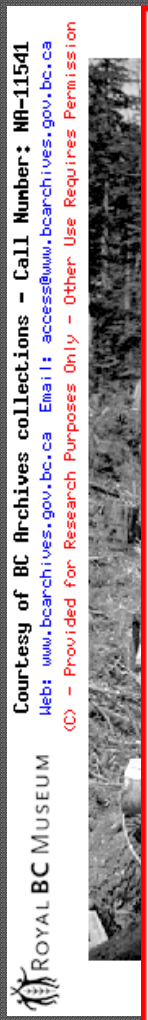
863,800km2

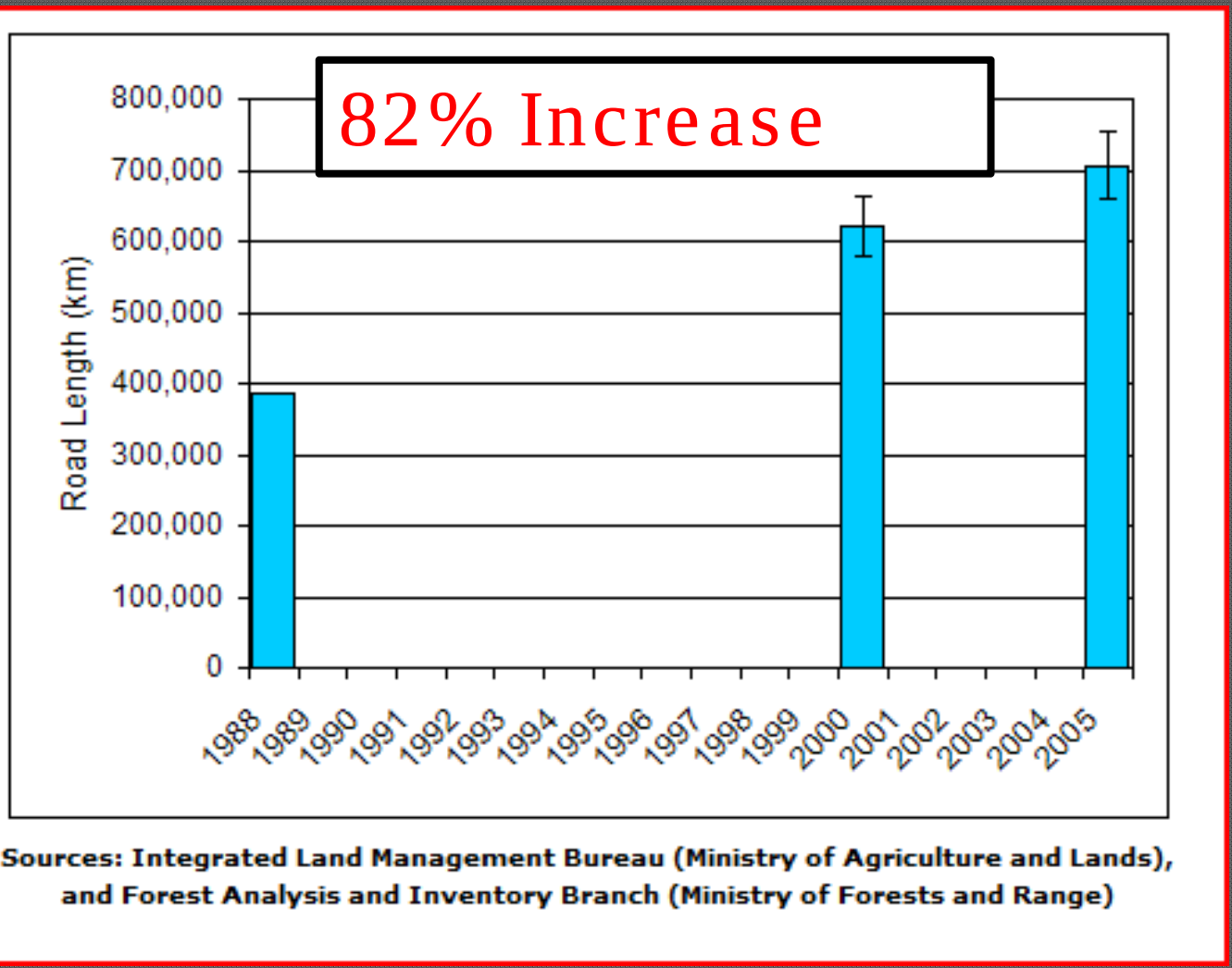
British Columbia's Fish



British Columbia's Resources

Resource Roads





Sources: Integrated Land Management Bureau (Ministry of Agriculture and Lands), and Forest Analysis and Inventory Branch (Ministry of Forests and Range)

Recap from 2013

- GIS analysis and fish habitat modelling
- Many roads (>500,000 km) much of it 'non-status' and non-maintained
- + Many streams
- = a huge legacy of crossings – over 300,000 on modelled fish habitat

Recent Accomplishments

- More Assessments – now over 18,000 records in the PSICS database
- Have also dealt with a legacy data backlog

Recent Accomplishments – con't

More Remediations!

Recent Accomplishments – con't

- More partnerships
  - Department of Fisheries and Oceans – Recreational Fisheries Conservation Partnerships Program
  - Pacific Salmon Foundation
  - BC Hydro
  - Fist Nations

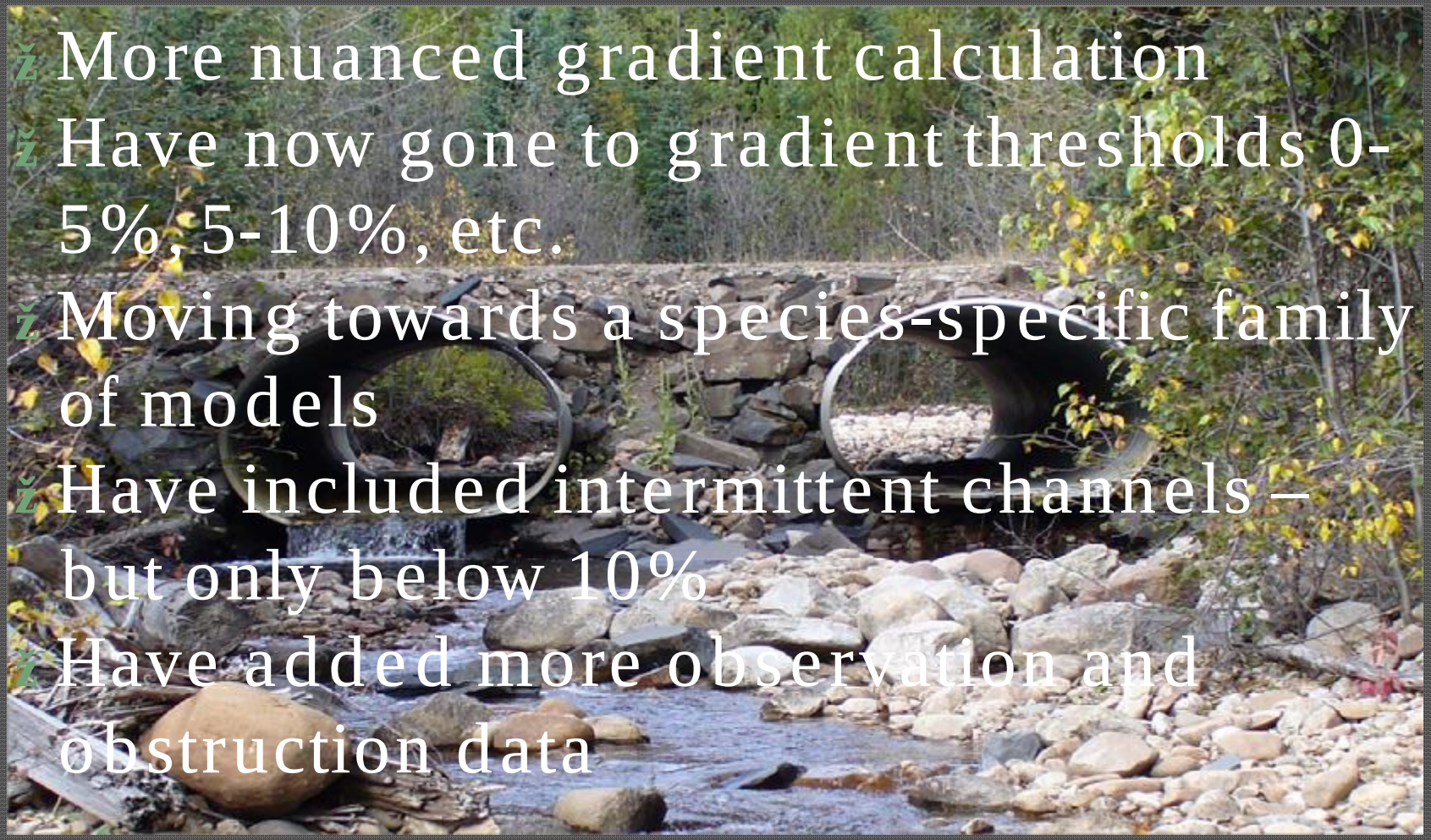
BC hydro

Fisheries and Oceans Canada

Pêches et Océans Canada

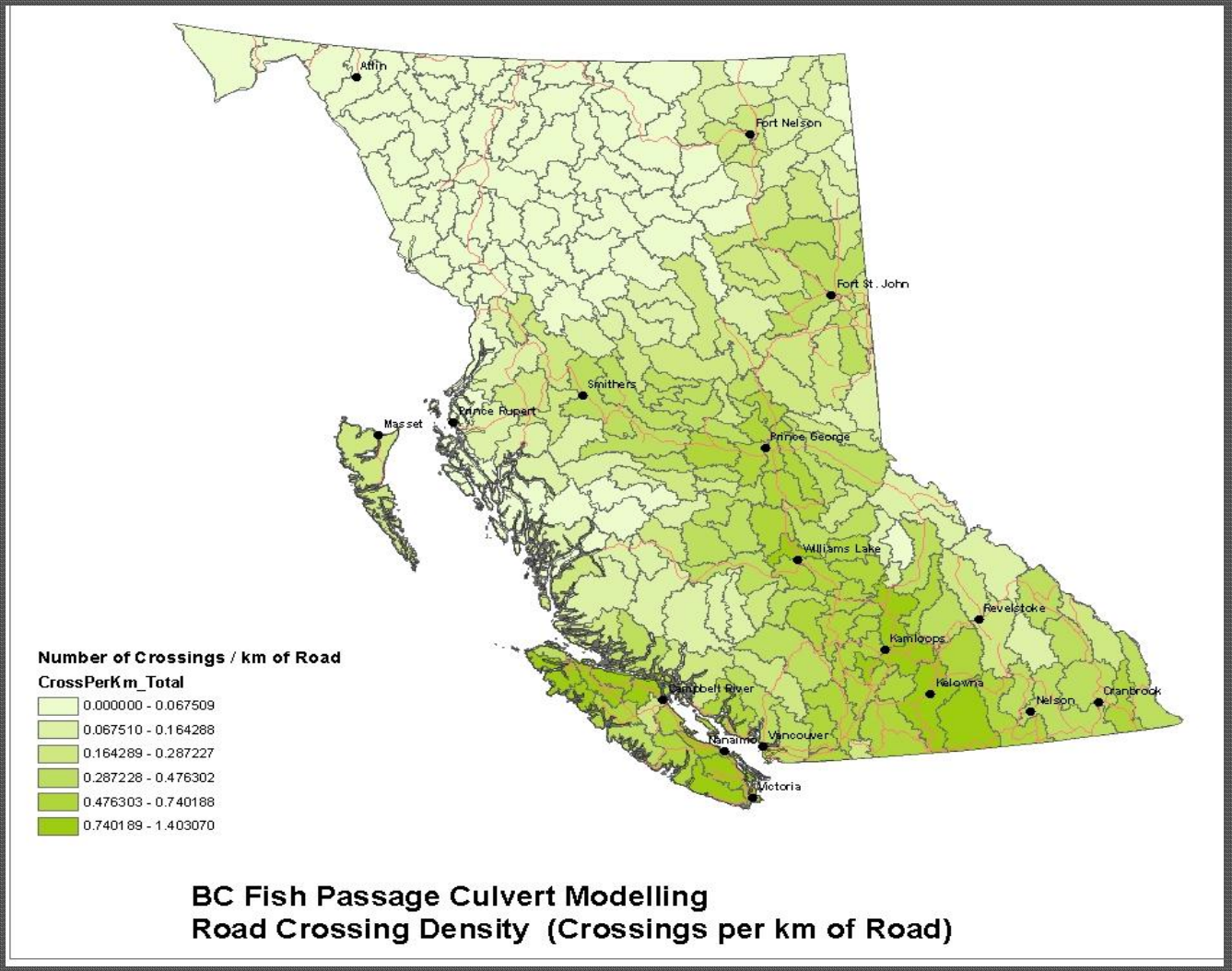
PACIFIC SALMON FOUNDATION

Improvements to our Freshwater Habitat Model



- More nuanced gradient calculation
- Have now gone to gradient thresholds 0-5%, 5-10%, etc.
- Moving towards a species-specific family of models
- Have included intermittent channels – but only below 10%
- Have added more observation and obstruction data

The scope of the problem

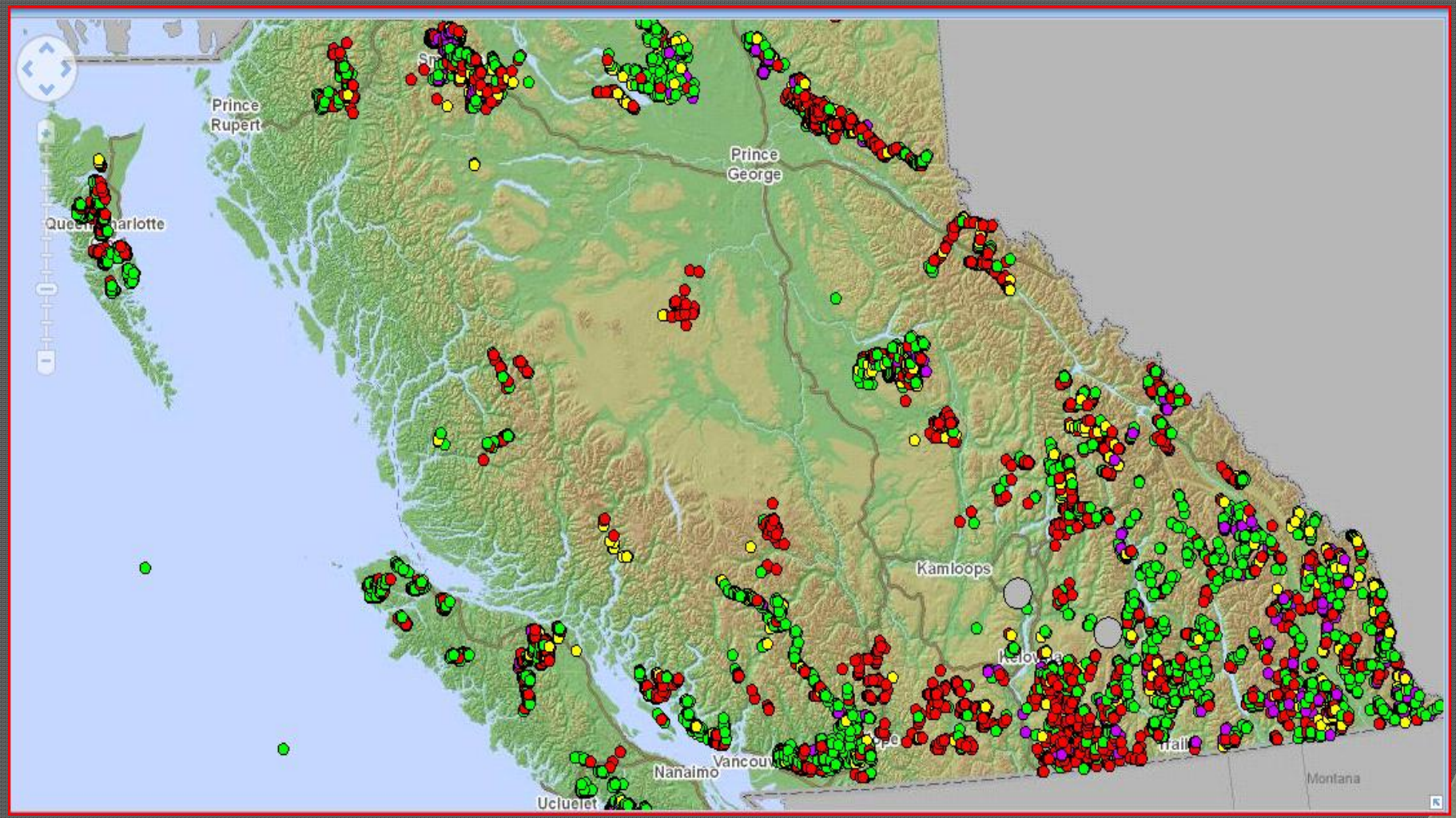


BC Fish Passage Culvert Modelling
Road Crossing Density (Crossings per km of Road)

PSCIS – Provincial Stream Crossing Inventory System

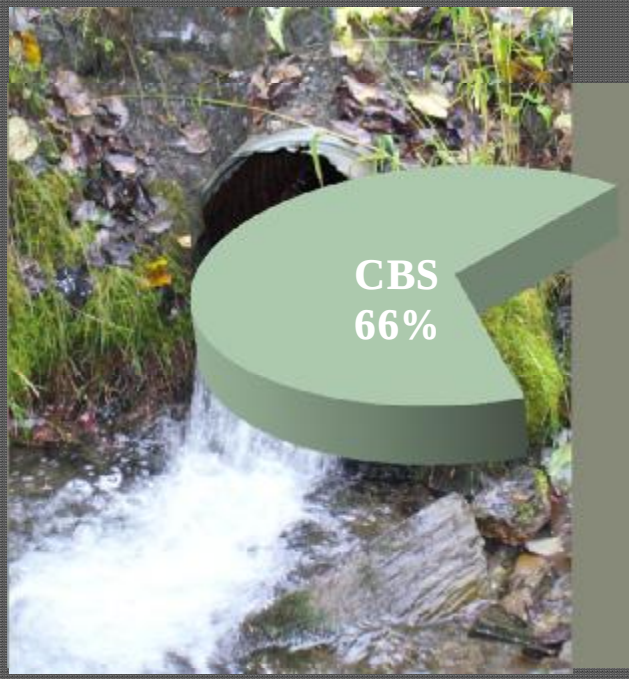
- A Centralized Provincial Repository for all culvert fish passage data
- 4 types of data correspond with the 4 stages in a fish passage workflow:
  - Assessment
  - Habitat Confirmation
  - Design
  - Remediation

Results - Assessment Points



Results - Types of Crossings Assessed

Crossings Assessed in BC 2008-2017
> 18,000 observations

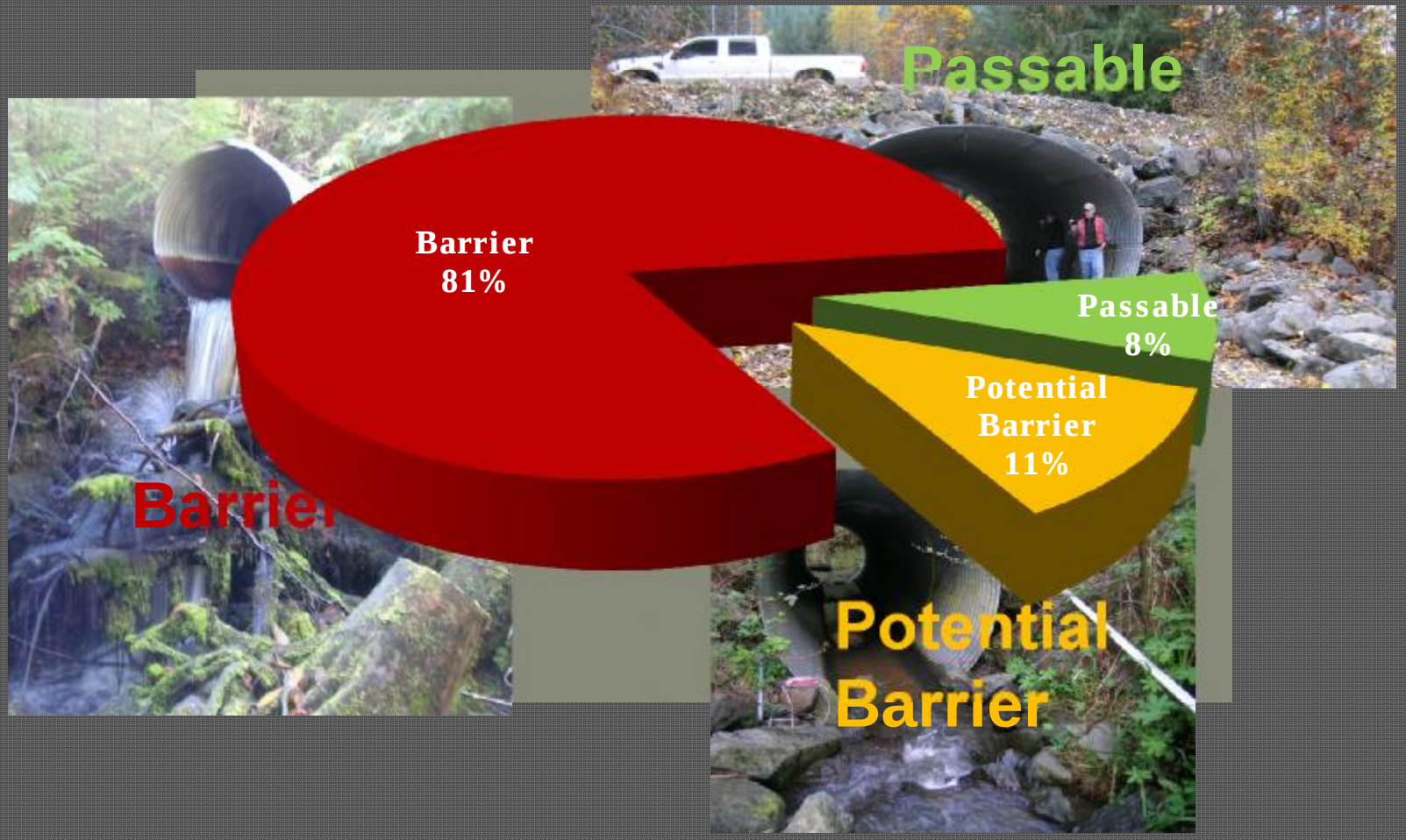


CBS
66%

Other (Fords)
5%

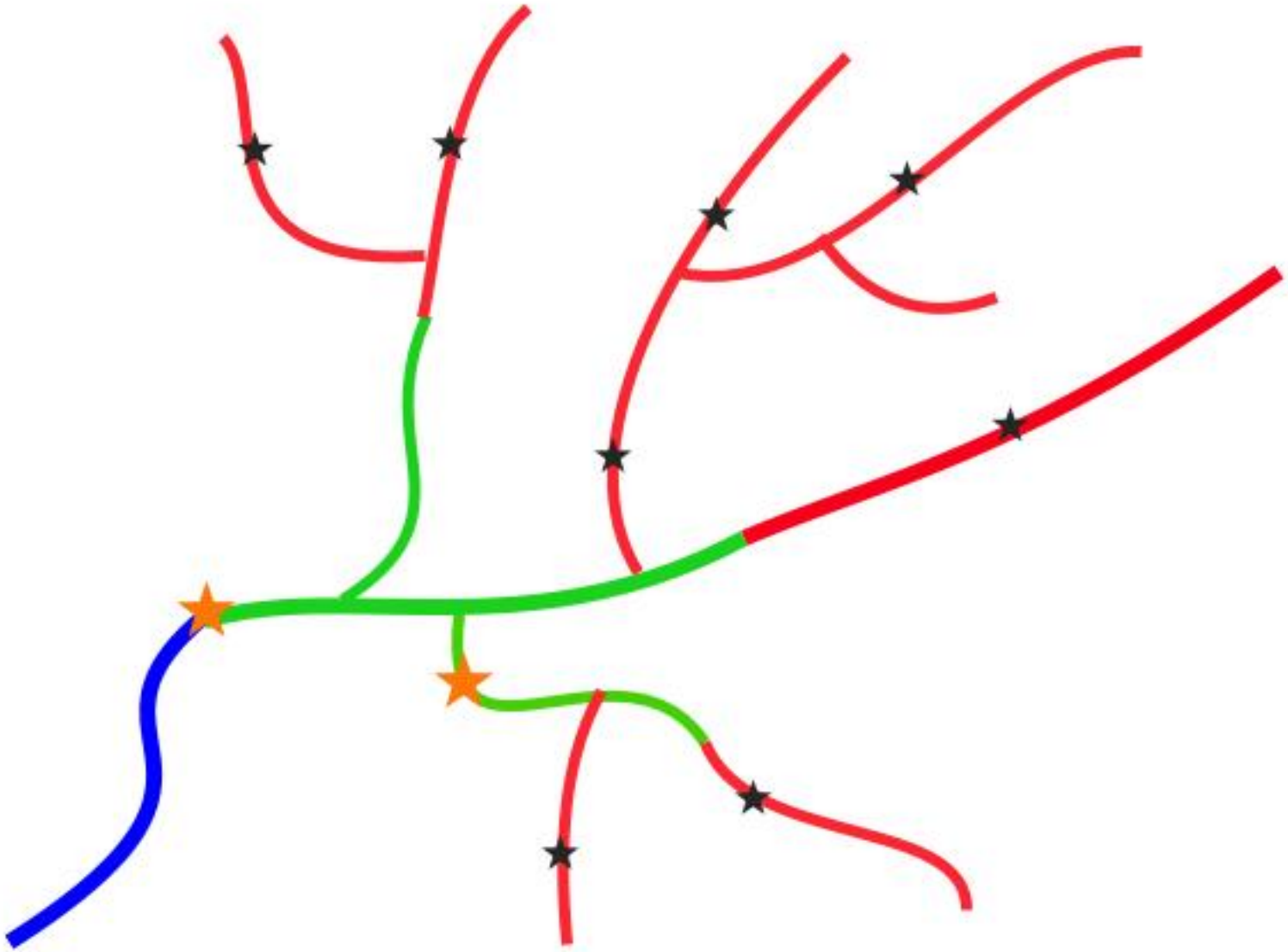
OBS
29%

Results - Closed Bottom Structure Assessments



Some attention-getting numbers

	Streams	Crossings
Total	~1,750,000 km	515,000
Habitat <20% Gradient	491,000km	172,000
Percentage	28%	33%
Habitat above a modelled crossing	279,000km	
Percentage of habitat that could be cut off	57%	



But 60% of that is above potential barriers = 280,000km

Extrapolating….

	Streams	Crossings
Total	~1,750,000 km	515,000
Habitat <20% Gradient	491,000km	172,000

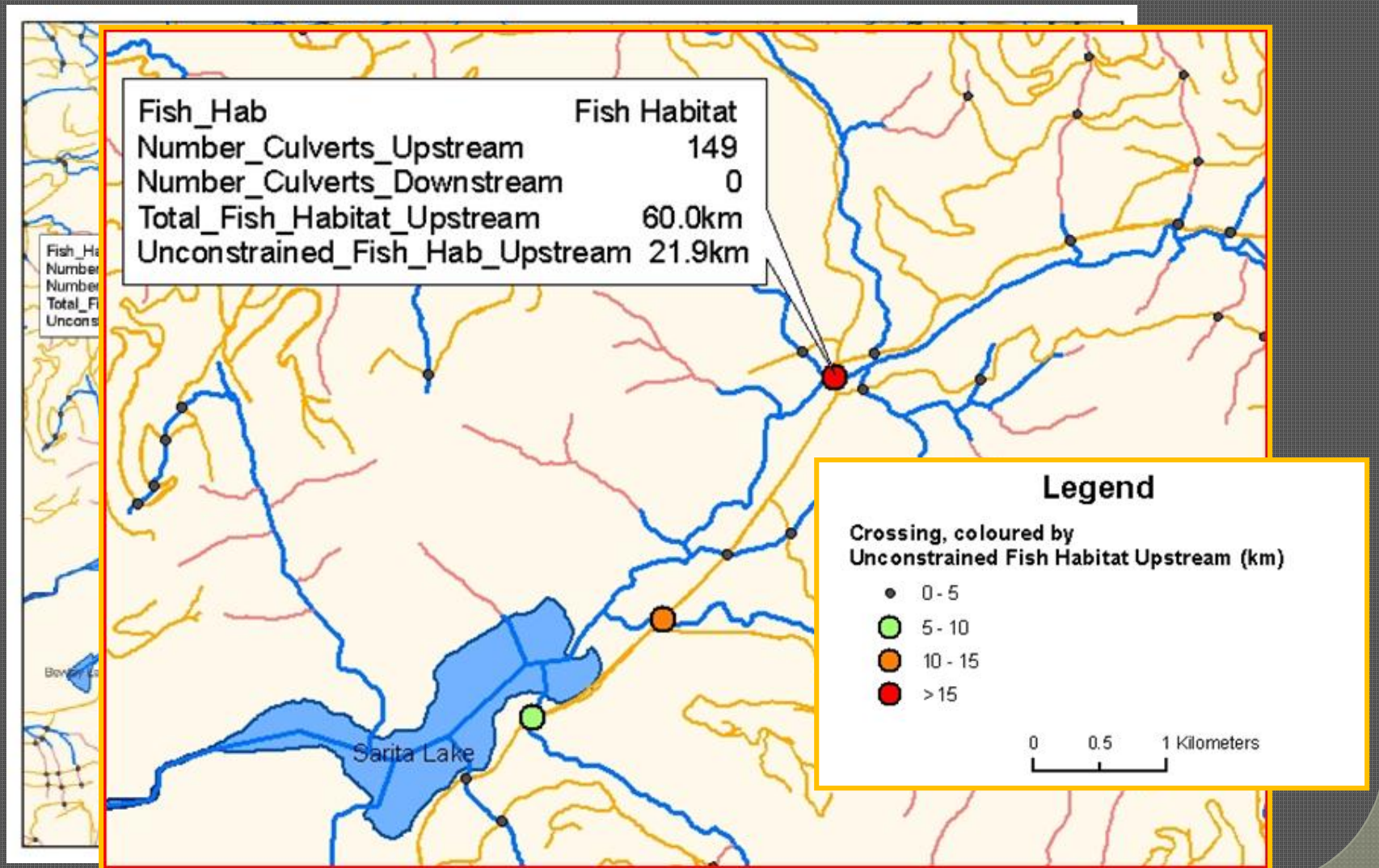
172,000 crossings

x .66 for Closed Bottom Structures = 113,500

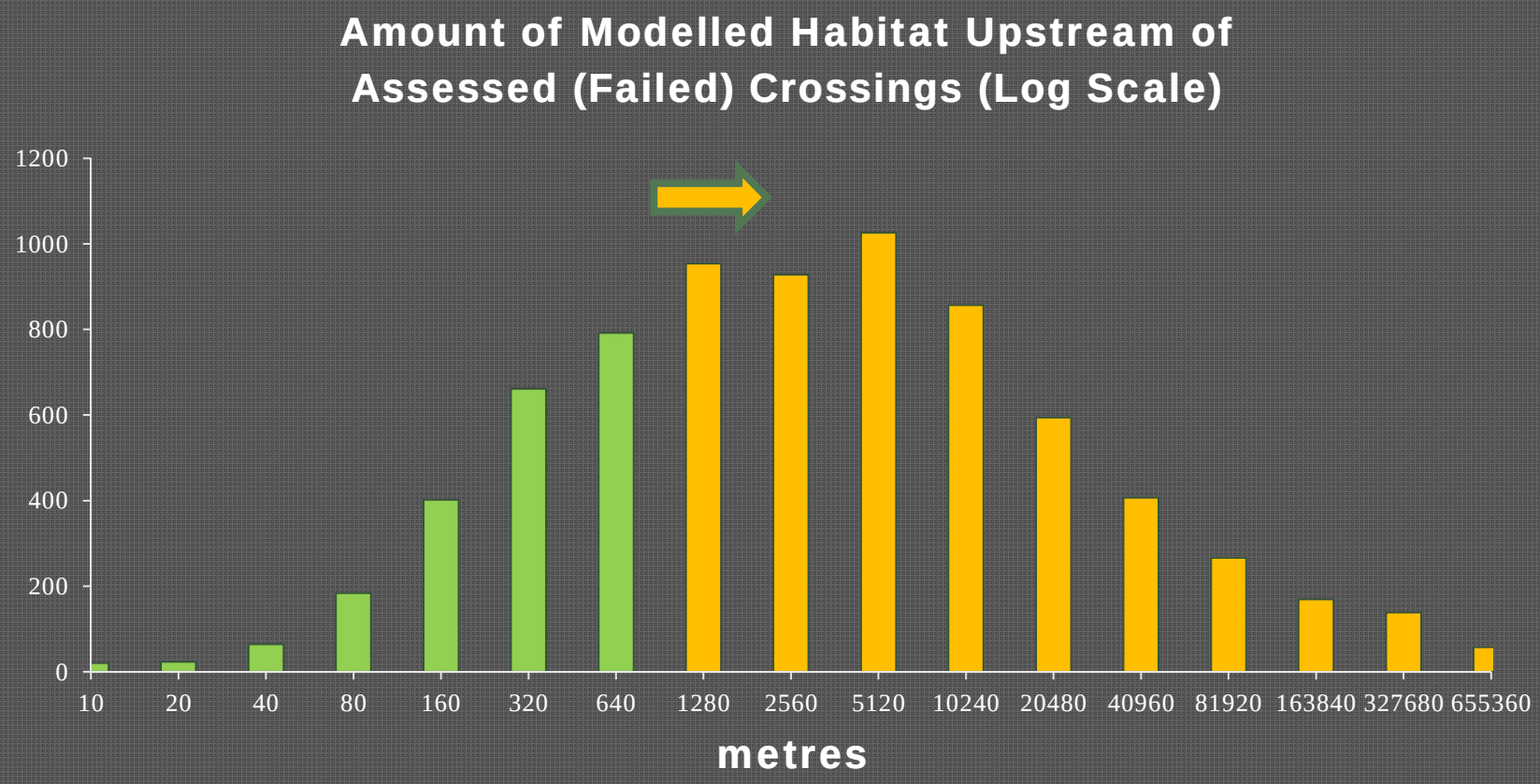
113,500 CBS x 81% Failure Rate

= 92,000 to be repaired

Estimating Potential Upstream Habitat

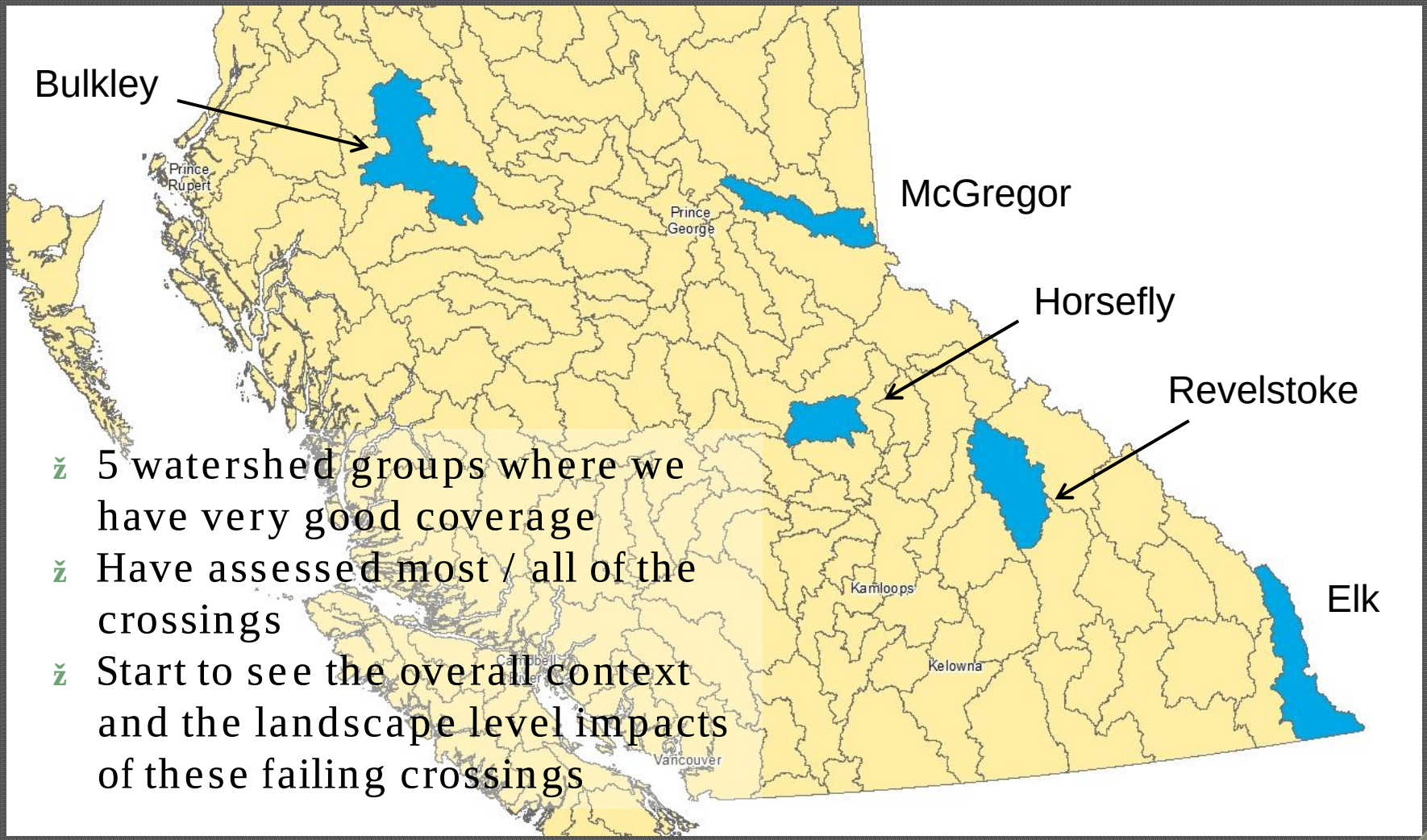


Habitat to be Gained



75% of the failed crossings have more than 1000m of upstream habitat

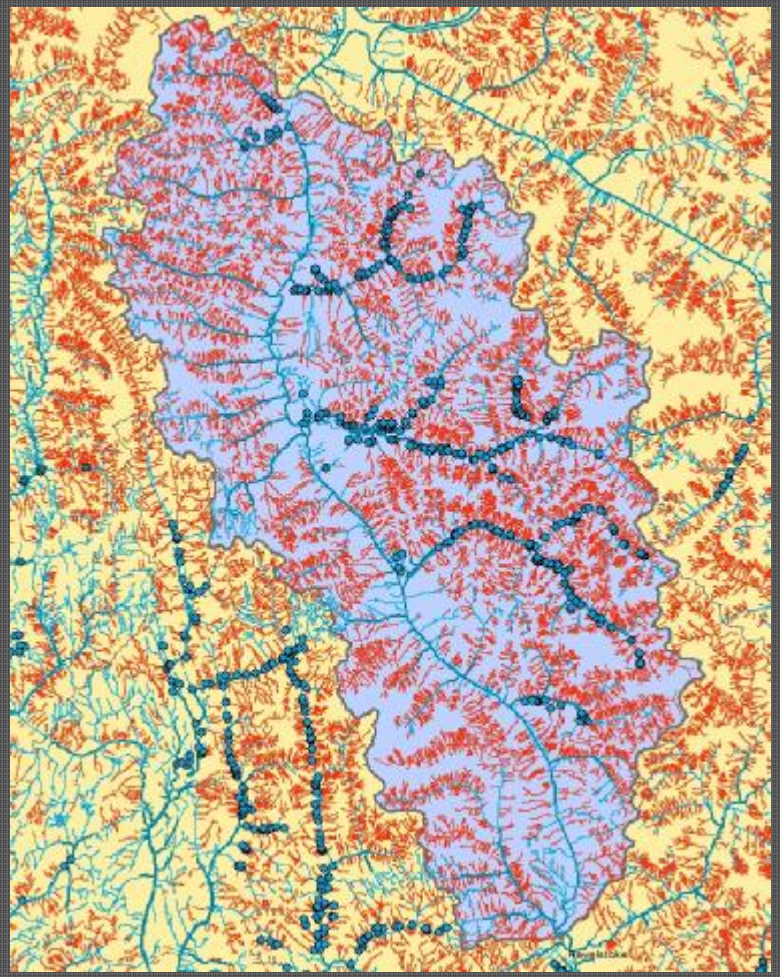
Results



- 5 watershed groups where we have very good coverage
- Have assessed most / all of the crossings
- Start to see the overall context and the landscape level impacts of these failing crossings

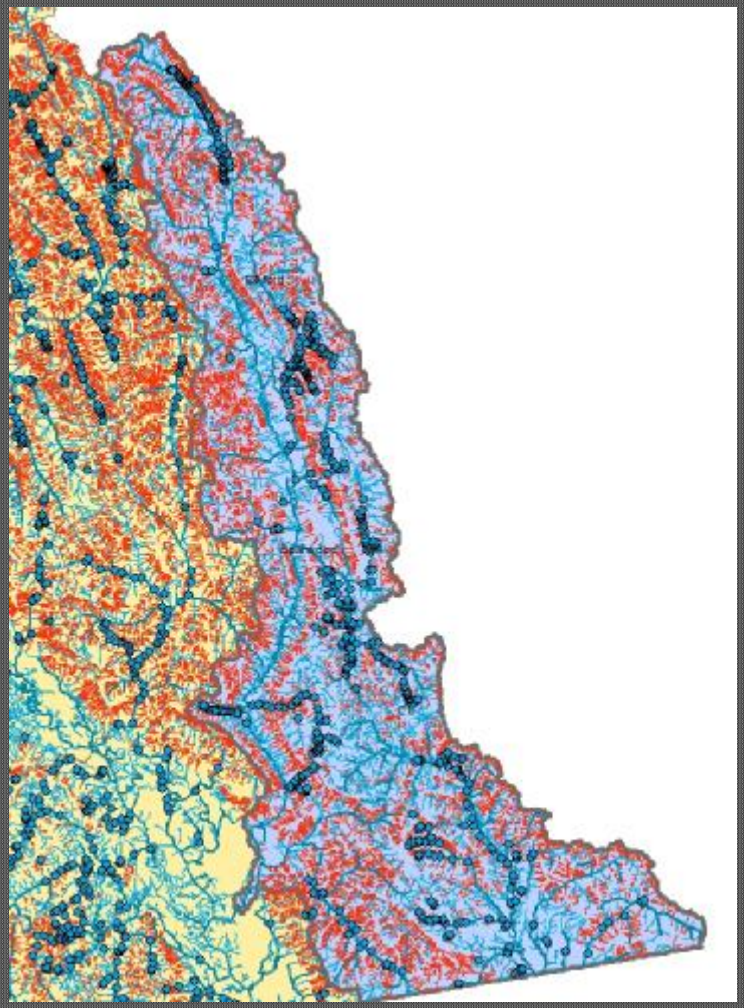
Revelstoke Lake

Number of Assessments	320
Number of Barriers	239
Number of Barriers on Fish Habitat	97
Total Isolated Habitat	75,958
Total Habitat	2,632,587
Percent Isolated	2.9



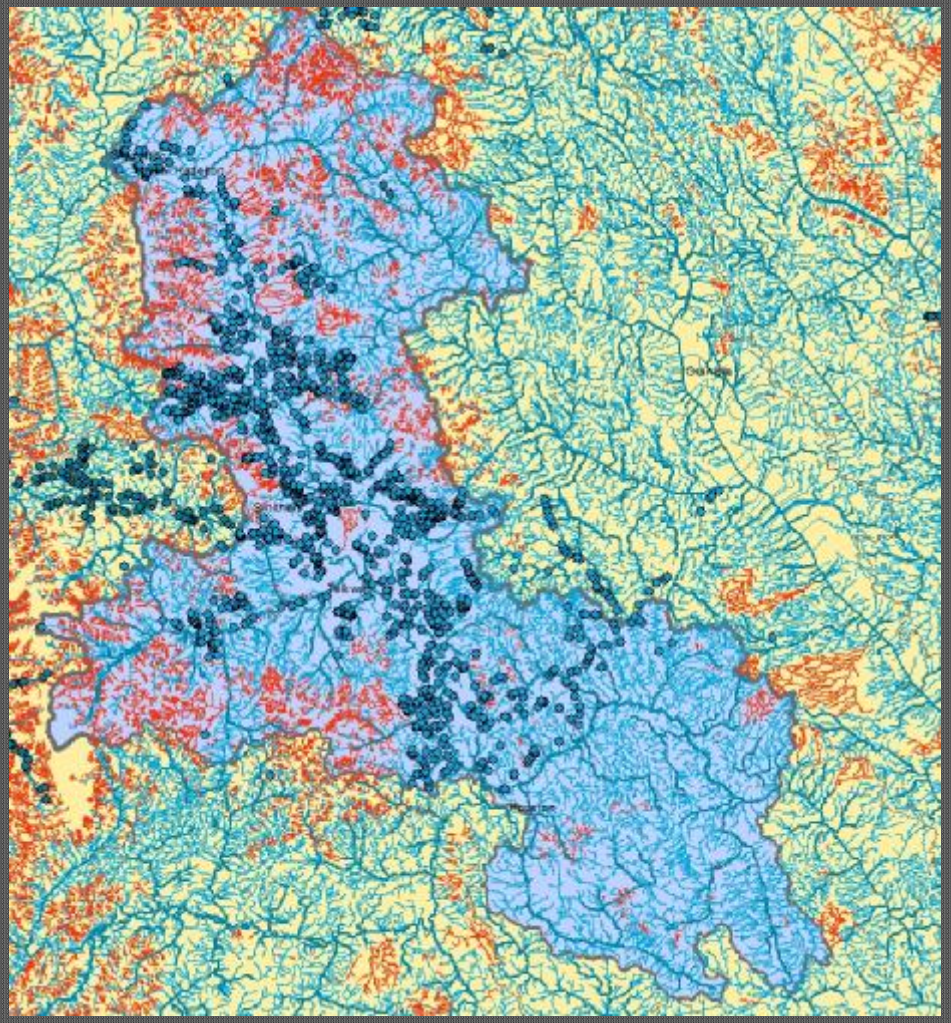
Elk River

Number of Assessments	880
Number of Barriers	451
Number of Barriers on Fish Habitat	337
Total Isolated Habitat	410,129
Total Habitat	7,141,556
Percent Isolated	5.7



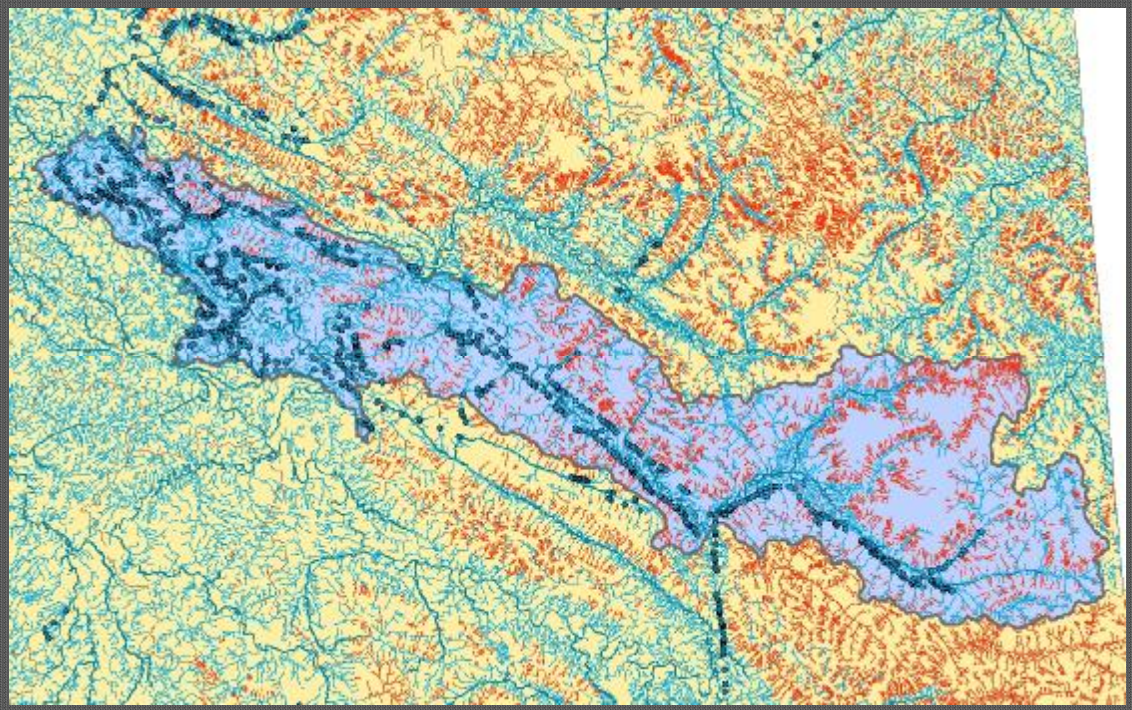
Bulkley River

Number of Assessments	1,259
Number of Barriers	698
Number of Barriers on Fish Habitat	570
Total Isolated Habitat	1,728,058
Total Habitat	10,792,146
Percent Isolated	16.0



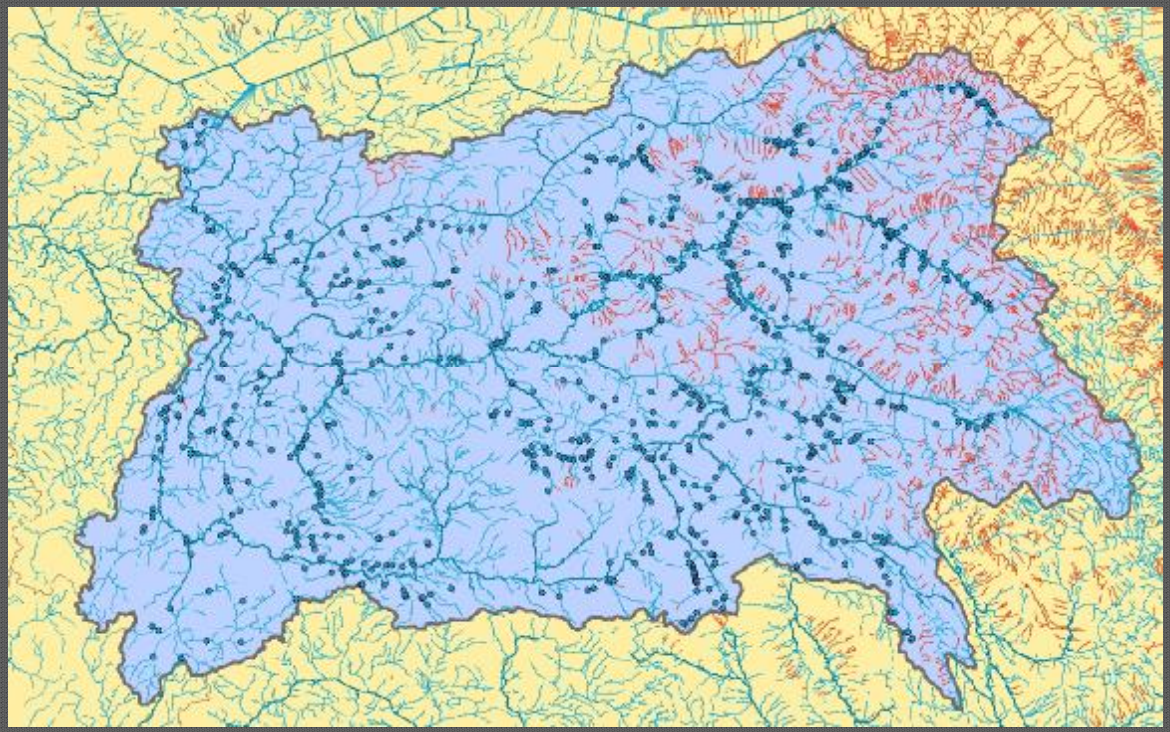
McGregor River

Number of Assessments	985
Number of Barriers	679
Number of Barriers on Fish Habitat	351
Total Isolated Habitat	345,740
Total Habitat	1,289,098
Percent Isolated	26.8



Horsefly River

Number of Assessments	841
Number of Barriers	504
Number of Barriers on Fish Habitat	375
Total Isolated Habitat	685,377
Total Habitat	2,046,948
Percent Isolated	33.5



Looking ahead

- We need to grow the program
- Leverage funds
- Make the case for the economic returns and spin-off benefits
- Cost-Benefit Analysis is being done currently

Start moving from this

To this

Acknowledgements

Simon Norris

Richard Thompson


Questions??